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U. S. FLOUR AT TRIESTE

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FRONT COVER

U. S. Flour at Trieste

Since the war, more than half of the record-breaking United States shipments of wheat and flour have gone to Western Europe. (Photo courtesy of Mutual Security Agency.)

BACK COVER

International Trade in Wheat

The United States has been the principal wheat-exporting country since the war. One out of every three bushels of wheat produced in this country has gone abroad.

NEWS NOTES

Food and People

"Food production has risen materially since the war, but most of the increase has been in the countries that were already high producers. Though total world production is now some nine percent greater than the average in the five-year period 1934–38, the number of people is twelve percent greater."

In this way the present status of food supply for the world's people was summed up by N. E. Dodd, Director-General of the Food and Agriculture Organization of the United Nations, in his recent report to that Organization, "The Work of FAO, 1950–51."

"Thus, if all foods were evenly distributed, each of the more than 2,000 million people in the world would have a little less to eat today than in the five prewar years," continued Mr. Dodd. "But of course foods are not evenly distributed. Those who were well-fed have as much as they had before, or more. Most of those who were hungry then are now hungrier. . . .

"The situation is particularly bad in the Far East. Up to now it has been possible to offset the shortage of rice and maintain a precarious balance between supply and demand for this staple foodstuff only by heavy imports of wheat and coarse grains from sources outside Asia. . . .

"It would seem that hunger is steadily haunting our civilization. If the tide continues to rise, there will inevitably be also a rising tide of unrest and revolution and war.

"In spite of these dark facts I find myself with a feeling of hope and confidence. This is because nations seem at last to be preparing for a genuinely large-scale world war against want. I am confident that such a war can be won, and that it is a necessary part of the counter-strategy to prevent another war of nations against nations, which none can really win. . . ."

Credit for photos is given as follows: pp. 7, 11, University of Wisconsin; pp. 13, 15, 16, Freeman S. Howlett; pp. 22–23, Public Relations Division, HICOG.

FOREIGN AGRICULTURE ALICE FRAY NELSON, EDITOR

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U. S. Wheat and Flour In World Markets

by ROBERT L. GASTINEAU

The importance of the United States as a source of supply for wheat and wheat flour in postwar world trade has been shown many times in recent years. Each passing year adds further to the record. During the six full crop years following World War II, one out of every three bushels of wheat produced in the United States went to satisfy requirements abroad. And current prospects indicate that exports this, the seventh, year will not miss the postwar average by far.

Put another way, United States exports of wheat and flour from July 1945 through June 1951 exceeded 2.4 billion bushels—a quantity nearly equal to the 2.5 billion bushels of net exports from this country during the 20 years 1920–39. The 6-year total represents nearly all of the wheat produced, for example, in Nebraska, Kansas, Oklahoma, and Texas during that period.

Of the total of 2.4 billion bushels, 1.7 billion moved in the form of wheat and 700 million bushels (wheat equivalent) were exported in the form of flour. Average annual exports during the 6-year period totaled 405 million bushels, of which 289 million moved as grain and 116 million as flour. It should be noted in the case of flour, however, that most shipments were concentrated in the immediate postwar years, the peak being reached in 1946–47, when 195 million bushels of wheat were exported in the form of flour. In recent years, flour exports have been around 40 million bushels, wheat equivalent, reflecting in part the recovery and rehabilitation of the milling industry in Europe and a return to more normal supply-demand relationship and trade patterns.

The distribution of this tremendous quantity of wheat and flour, by continents and by years for the period under discussion, is shown in table 1. The major deficit area is, of course, represented by Western Europe, including the United Kingdom, which absorbed 68 percent of our total exports. Asia, with 19 percent, and the Western Hemisphere (Latin America), with 11, account for most of the rest.

Many countries throughout the world have looked to the United States as a source of supply for wheat and flour. Some countries, such as France, India, and Brazil, for example, have been "in and out," with fairly heavy requirements during individual years of the 6-year period. But for the entire period, Western Germany has been by far the largest market, with an average annual import of 92 million bushels (70 wheat and 22 flour). Japan is next, with an annual average of 40 million bushels, mainly wheat as grain. Next in order come Italy (37), and the Low Countries (36). Other sizable markets during the period include Greece, the United Kingdom, France, Austria, and India. The Latin American countries, as a group, and parts of Asia represent traditionally important flour markets, but here again European countries have afforded the largest market.

The 6-year period is replete with records—195 million bushels of wheat exported in the form of flour during 1946–47; nearly 60 million bushels total wheat and flour in a single month (April 1951); more than 26 million bushels of wheat as flour in a single month (May 1947). The all-time peak was reached in 1948–49, when total wheat and flour exports reached 503 million bushels. This was the largest total ever moved in a single year by an individual exporting country. Indeed, our wheat and flour exports during that year exceeded domestic consumption for food in the United States by more than 20 million bushels.

More detailed explanations of market conditions and supply-demand relationships in world trade during individual years are available elsewhere. It is sufficient for the purpose of this discussion merely to touch briefly upon some of the highlights of our foreign market for wheat and flour since World War II. Having said this, what is the significance of all these statistics?

First of all, they serve to illustrate the fact that the United States has been the leading exporter of wheat

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and flour in every year since 1945–46. Approximately 46 percent of the 6-year total world trade in these commodities has come from this country. Included among the factors that have characterized this position are these: (1) an abnormal world demand for wheat especially during the immediate postwar years; (2) a willingness on the part of the United States Government to assume supply responsibility for many of these requirements through various foreign aid programs; (3) the ability of our wheat farmers to produce—aided by generally favorable weather and the incentives of the domestic price support program; and (4) the capacity of private enterprise—the grain trade, milling industry, and our transportation system—all cooperating with government to move unprecedented quantities of wheat and flour.

But more important, perhaps, is the purpose the statistics might serve as useful background in considering the prospect of maintaining the position in the years ahead. Full utilization of our agricultural resources, particularly in the Great Plains and the Pacific Northwest, will depend upon the extent to which our position is maintained in the world wheat market. On average, the wheat harvest from about 24 million acres of land during each of the 6 years since 1945 was needed to supply our foreign market. To belabor statistical comparisons still further, 24 million acres is more than the total 1951 wheat area in Australia and Argentina put together; it nearly equals the wheat acreage for harvest this year in Canada—the remaining member of the principal wheat-exporting countries.

In looking ahead, then, the importance of our stake in the foreign market is represented rather forcefully by this figure of 24 million acres. It seems reasonable to expect that the future foreign market for United States wheat and flour will not support an acreage of that size. But to the extent that our foreign market can be maintained, the need for costly and difficult readjustments will be minimized.

At the opening session of the 29th Agricultural Outlook Conference, recently held in Washington, Secretary Brannan described the current agricultural outlook as one of the most important in the history of this country. He also outlined the job farmers are expected to do in the coming year. Part of that job was to "produce enough to back up the Nation's foreign policy by enabling us to continue to share our food and fiber to the fullest possible extent under sound arrangements with friendly countries in need of help."

TABLE 1.—*United States exports of wheat and flour,*[1] *1945–46 to 1950–51*

[1,000 bushels]

Year[4]	Western Hemisphere	Europe[2]	Africa	Asia[3]	Total
1945–46:					
Wheat	13,810	229,799	3,269	26,135	273,013
Flour	23,693	76,134	3,348	12,186	115,361
Total	37,503	305,933	6,617	38,321	388,374
1946–47:					
Wheat	16,017	136,121	125	46,547	198,810
Flour	41,432	115,966	4,434	33,354	195,186
Total	57,449	252,087	4,559	79,901	393,996
1947–48:					
Wheat	12,713	235,320	7,787	48,868	304,688
Flour	24,196	116,577	4,524	28,807	174,104
Total	36,909	351,897	12,311	77,675	478,792
1948–49:					
Wheat	14,820	280,044	8,371	72,185	375,420
Flour	36,000	53,473	2,753	34,913	127,139
Total	50,820	333,517	11,124	107,098	502,559
1949–50:					
Wheat	17,275	175,525	422	65,498	258,720
Flour	9,025	18,987	1,298	10,440	39,750
Total	26,300	194,512	1,720	75,938	298,470
1950–51:					
Wheat	32,739	205,716	5,049	77,798	321,302
Flour	13,377	16,612	1,219	12,528	43,736
Total	46,116	222,328	6,268	90,326	365,038
Total:					
Wheat	107,374	1,262,626	25,023	337,044	1,732,067
Flour	147,723	399,148	17,576	132,403	696,850
Total	255,097	1,661,774	42,599	469,447	2,428,917
6-yr. average:					
Wheat	17,896	210,438	4,170	56,174	288,678
Flour	24,620	66,525	2,930	22,067	116,142
Total	42,516	276,963	7,100	78,241	404,820

[1] Flour in wheat equivalent. Excludes flour not wholly of U. S. wheat.

[2] Includes French North Africa.

[3] Includes insignificant quantities to Oceania.

[4] Year beginning July.

That statement defines the job in broad, general terms. Narrowing it down to specific commodities, indications are that United States exports of wheat (including flour) during the marketing year 1951–52 may be expected to continue at the relatively high level of the past year. Factors supporting this prospect for the current year include:

On the demand side:

1. A decline in production of wheat in Western Europe, the world's major deficit area.

2. A likely continuation of international tensions, with the accompanying tendency in importing countries to build up and maintain adequate reserves.

3. A carry-over into the 1951–52 year of the ex-

traordinary demand for food grain in India.

4. An improved dollar position in many countries as the result of increased economic activities under the defense program.

5. A continuation of substantial foreign aid programs, especially for wheat and other grains.

6. A relatively favorable price level for wheat under terms of the International Wheat Agreement.

7. Asiatic requirements for other grains to supplement relatively scarce supplies of rice.

On the supply side:

1. Supplies of wheat in the United States adequate to meet anticipated domestic and export requirements in the current year.

2. Marketing and transportation difficulties in Canada, which will tend to limit movement of milling grades of wheat from the record 1951 crop in that country, especially before the spring or early summer of 1952.

3. Prospective reduction in availability of grain for export from the Southern Hemisphere, especially Argentina.

4. Intensified East-West trade difficulties, which tend to offset the indicated increase in availability of grain for export from the U.S.S.R. and Danube Basin countries.

Beyond the immediate future, factors and conditions affecting our foreign market for wheat are more difficult to evaluate. This much seems certain, however, that total world wheat import requirements will remain above the level of prewar days. Increasing population and the difficulties involved in restoring world trade in rice to former levels will support a relatively active demand for wheat, especially in important areas of the Far East. Much will depend on a return to more normal conditions and trade relationships. And these, in turn, will depend on a substantial lessening of present international

Unloading flour in Yugoslavia (left); bagging wheat at an Indian port (right). Aid programs have accounted for a substantial portion of U. S. wheat and flour exports since the war.

tensions. Progress toward this goal seems painfully slow under present conditions.

A major portion of our wheat and flour exports since World War II has been financed by various types of foreign aid programs. The cynical observation has been made that our foreign market for wheat depends on the quantity we are willing to "give away." That observation ignores an important aim of our foreign aid programs; namely, to relieve hunger and to help restore some measure of economic and political stability in friendly nations of the world. To the extent that our wheat exports have contributed to such stability, the United States has had value received. And there is compelling evidence in the record of recent years that this contribution has been an important one. During the troubled years that have followed World War II, these emergency programs have qualified as "sound arrangements."

Be that as it may, however, foreign aid must be, of necessity, temporary in nature. And as the need for such economic aid diminishes, the foreign market for United States wheat will depend upon more normal commercial arrangements. In that trade environment, we must expect to compete with other wheat-exporting countries, or we must accept a position as residual suppliers in many of the world wheat markets whenever the present domestic price support program operates to hold United States wheat prices above world price levels.

The problem has been recognized by our participation in the International Wheat Agreement, which has been operating since August 1949. The present Agreement expires in July 1953, and the question of its renewal must soon be considered. This is not to say that an International Wheat Agreement offers the only solution to the problem. But in the absence of other measures, and under present conditions, the idea and basic principles of the Agreement seem to offer an effective approach to maintaining for the United States a desirable position in the wheat and flour markets of the world.

A discussion of wheat exports would seem incomplete to many readers, perhaps, without reducing the longer-term outlook to quantitative terms. Only to the initiated are the limitations and dangers of such a procedure apparent; nevertheless, a conservative appraisal of such factors as are now known would suggest that average annual exports of wheat and flour from the United States in the foreseeable future will exceed the long-time (37 year) average of nearly 180 million bushels. The extent to which that level is exceeded, however, will depend on the balance struck between increased world requirements and mutually satisfactory trade arrangements for "dollar" wheat.

Reading about... Foreign Agriculture

Principles of Milk Production, by William Barbour Nevens, 443 pp., illus. McGraw-Hill Book Company, Inc., New York, Toronto, London. 1951. $5.00.

This new book on modern methods of dairy farming was designed as an introductory text but is of value as a reference also. Most of the book is devoted to the principles that serve as guides in the establishment and day-to-day management of a profitable dairy farm: selecting, feeding, breeding, and managing dairy cattle; production records; feed crops; economic problems in dairy farm management; factors affecting milk secretion; the designing and use of barns and milkhouses; and the marketing of dairy products.

Animal Nutrition, by Leonard A. Maynard, 474 pp., illus., 3d ed. McGraw-Hill Book Company, Inc., New York, Toronto, London. 1951. $6.50.

Field Crops, by Howard C. Rather and Carter M. Harrison, 454 pp., illus., 2d ed. McGraw-Hill Book Company, Inc., New York, Toronto, London. 1951. $5.50.

Animal Nutrition, by the Director of the School of Nutrition, Cornell University, is a presentation of the principles of nutrition and their application in feeding practice. It is here revised for the first time in 4 years. Changes have been made in every chapter and much new material, based on recent research, has been added. The revision reflects especially the advances in the knowledge of the way nutrients function and advances with respect to amino acids, vitamins, and micromineral elements.

Field Crops, co-authored by Dr. Rather, formerly Professor and Head, Farm Crops Department, Michigan State College, and Dr. Harrison, Professor, Farm Crops at Michigan State College, is designed primarily for beginning college courses in farm crops or agronomy. The text deals with the distribution, planting, management, harvesting, and use of the major field crops. This revision attempts to bring up to date all references to varieties of significance and data relating to yields, acreages, and prices.

World Land Tenure Conference

by BRYANT KEARL

The University of Wisconsin has a long record of interest in land policies and an equally solid tradition that the test of social science is how well it helps to meet the urgent needs of human society. Those are some of the reasons that the University was host recently to a Conference on World Land Tenure Problems.

Seventy-one people came to the Conference from 38 nations outside the United States. The group included leading agricultural economists and policy makers. Fifty-one were delegates and 20 were "trainees" who will remain at Wisconsin for a year's study in land economics and policy.

The Conference—first of its kind—met at Madison October 8, and the participants held an average of three sessions a day, four days a week, through November 9. Between November 9 and 16 a study tour took them through rural areas in Indiana, Kentucky, Tennessee, South Carolina, North Carolina, and Virginia. Final sessions in Washington, D. C., including a meeting with President Truman, closed the program.

Four American agencies shared in planning the program and bringing the visitors here. They included the University of Wisconsin, the Mutual Security Agency (Marshall Plan), the State Department's Point Four Administration, and the U. S. Department of Agriculture.

The conference participants came to Madison prepared to answer two questions:

"What are the best possibilities for improving landholding practices in your country?"

"What steps have already been taken—and with what success?"

Four top United States officials spoke at the opening sessions.

Willard Thorp, Undersecretary of State, declared that no one could overstate the importance of the problems to be considered, those relating to the land and the people on the land. "You will be talking about two-thirds of the world's population."

Land and its related institutions affect the character of individuals and the political institutions of a nation, Thorp asserted.

"The owner of a farm has a stake in the com-

munity. He is concerned with the quality and behavior of his government."

Thorp pledged United States cooperation in the encouragement of genuine land reform. Besides technical help, "We will do whatever else we can appropriately do to encourage and assist programs which show promise of bringing lasting benefits to farm people and of enhancing the role of agriculture in the national economy."

Importance of a program that goes beyond simple land redistribution was stressed by Clarence J. McCormick, Undersecretary of Agriculture.

"A good system of land tenure depends on the productivity of farms, on good markets and fair prices, education, credit, farm organizations, farm cooperatives, and governmental institutions that are responsive to the will of the people," he explained.

Land reform was keyed to total economic programs in a talk by D. A. Fitzgerald, of the Mutual Security Agency. Economic development rests on the accumulation of capital and its investment in productive uses, he said.

"Internal political and economic stability stand out as of prime importance to optimum domestic investment in agriculture, just as they do in providing an attractive climate for foreign investment."

Three essential goals for agriculture were listed by Henry G. Bennett, Point Four Administrator.

"First, the farmer must be able to own land or to use the land he tills under fair conditions and terms of tenure. Second, the farmer must have access to credit on reasonable terms. Third, he must have access to the knowledge and techniques that will make his efforts productive and profitable to him and to society."

Any concern that the participants from other lands would not talk freely or frankly was quickly dispelled.

Early in the conference, India and Pakistan shared the platform for a morning session. The exchange was friendly, factual, and doubly profitable because of the mutual experiences and common background of the two lands.

M. L. Dantwala, reader in agricultural economics at the University of Bombay, outlined the 10-point program of agricultural reform to which India has pledged itself: (1) Abolition of intermediaries between the state and the tiller of the soil; (2) ceilings on individual ownership of land, with redistribution of the excess; (3) encouragement of owner operation on suitable sized farms; (4) occupancy rights for existing tenants; (5) expansion of cooperative credit, marketing, processing, etc.; (6) rehabilitation program for low income farms on the lines of the Farm Security Administration plan; (7) cooperative joint farming where individual farming is uneconomic; (8) extension of nonfarm employment; (9) abolition of serfdom and quasi-serfdom; and (10) check on low agricultural wages.

The head of the department of economics at Pakistan's University of the Punjab, S. M. Akhtar, particularly agreed on the matter of absentee landlordism.

"The ideal position will be the complete abolition of absentee landlordism, conferment of full proprietary rights on the cultivator, and application of the cooperative principle to the various processes of farming and agriculture in general," he told the conference.

Japan's land reform program, adopted during military occupation after World War II, brought high interest from the conference. Keiki Owada, of Japan's Ministry of Agriculture and Forestry, described the two major land tenure problems that brought pressure for reform: high rents and lack of security for the tenant.

Local commissions, made up of tenants and owner-farmers as well as landlords, have been the key agencies in Japanese land reform, Owada reported. They determine purchase and sale policies, within general limits of the national law.

Technical difficulties in land reform were stressed in most of the conference discussions. But a warning that these must not be used as an excuse to wait "until it is too late" came from Wolf I. Ladejinsky, Agricultural Attaché at the U. S. Embassy in Tokyo.

"If land reforms to improve the welfare of the peasants are not initiated before it is too late, and by those who have the land and the political power, the Communists will do it for them. In that event, much more will be lost than the landlords' land," Ladejinsky contended.

"Too large, too small" were the recurring themes in all discussions of land reform. Peru's Francisco Ponce de Leon, for example, proposed two lines of attack on tenure problems in his country: A redistribution of land holdings, starting with state lands and ending with the expropriation of surplus

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lands, not exploited, of large estates; a consolidation of small properties by legal means.

Lands under cultivation make up only a small part of Peru's total area. Irrigation would open new coastal lands, and a system of roads and railroads would give access to present jungle lands.

A warning that land ownership is not the only problem, and usually cannot be attacked separately from other agricultural problems, came from Assadollah Alam, chamberlain to the Court of the Shah of Iran. Certain types of cooperatives and management agencies are needed to give the farmer the services it takes to make land reform work. The lack of capital for these agencies is hampering land reform in Iran, Alam added.

Manlio Rossi-Doria, professor at the University of Naples, endorsed the warning that land reform by itself is not enough.

"It involves much more than the expropriation and redistribution of areas; it involves an impressive technical and financial effort. Our land reform is not carried out by spontaneous initiative of the peasants who are then left alone with the land assigned to each, but instead through the administration of special agencies whose task is not only that of regulating redistribution. . . . but also and specially that of aiding the peasants in their hard period of essential transformation of the land and the agriculture," Rossi-Doria explained.

Cooperative machinery stations are not as easy an answer as they may seem to be to problems of small holdings, a German participant advised. Otto Schiller, professor of agricultural economics at the College of Agriculture in Hohenheim, said, "Although we must make every effort to improve the small holding by joint use of machinery and by other means, we should at the same time make use of all means of agricultural policy which lead to a gradual change in land tenure in favor of large family farms."

Dutch comments on machinery cooperatives were more encouraging. C. D. Scheer, of the Netherlands Ministry of Agriculture, Fisheries, and Food, reported that machinery cooperatives set up after World War II have reduced the equipment needs of members by at least one-fifth.

Possibilities of mechanization have been a strong argument for consolidation of holdings in France, reported Jean Roche of the French Ministry of Agriculture.

In the open-field regions of France the consolidation program has been especially successful. In wooded regions the program is still very much on a trial basis because the advantages are less obvious.

Sound credit plans have helped to put Mexico's agrarian reforms into effect, reported Marco Antonio Duran, of the National Agricultural and Livestock Credit Bank in Mexico City.

Europe's experience in cooperative credit influenced the establishment of Mexico's agricultural credit system, Duran said.

Several conference participants noted the special efforts that must be taken to "sell" farm people on the cooperative approach. "Cooperative organization cannot be imposed by law or by governmental order, but it must be an attitude accepted fully by each farmer," Duran explained.

Mexico's experience will undoubtedly help other Central and South American countries solve their land reform problems more easily, Edmund Flores, economist at El Colegio de Mexico, added.

Supervised credit won approving comments from many of the participants. Luis Rivera Santos, of the Puerto Rican Department of Agriculture, reported that the impact of the Farmers' Home Administration program on agricultural production there has been significant.

In Thailand, a system of owner operation of farm land has been "the source of the people's contentment . . . and a great source of economic strength," reported Theb Semthiti of the Ministry of Agriculture.

Nevertheless, the problem of credit, formerly available only at usurious interest rates and with payment in kind, buried the peasants in a mire of debt. Semthiti said great progress has been made through cooperative credit societies.

Available land for farmers now renting is an urgent need in Cuba, in the opinion of Manuel Rodriguez Cabrera of the Agricultural and Industrial Bank of Havana.

Cuba also needs to go further in mechanizing its farming, expanding irrigation, improving the road system, extending electric power to more farms, regulating prices of farm products so that producers will get a fair return, improving livestock, and doing more about the health and nutrition of rural people, Rodriguez said.

A few nations said that concentration of population in cities limits the productivity of their farming. Eduardo Llovet, director of the National Institute of Colonization at Montevideo, reported that two-fifths of Uruguay's population is located in a single city. Only 15 percent of the people are on farms.

The nation's present colonization plan provides that colonists get credit and other aids only on condition that they accept technical advice as well, Llovet said.

The Philippine Commonwealth is taking three main routes to tenure improvement, said Jose E. Velmonte, faculty member of the University of the Philippines. Organized land settlement is increasing the total productive area. State purchases of large estates have made 100,000 acres available for owner operation. Lease contracts are being adjusted, in part by legislation, and other steps are being taken to give tenants more security and make their farming practices more productive.

Cambodia reports strenuous steps at land development. Parceling of land and the individualism of the Indochinese farmers are hindering the mechanization of agriculture, according to Tep Youth, chief of cadastral surveys in the Cambodian Ministry of Agriculture.

Youth foresees progress through a six-point program: (1) Education of the farm population on improved farming methods and cooperation; (2) a stepped-up program of agricultural hydraulic works; (3) extension of credit facilities; (4) development of the road system; (5) an intensified fight against malaria; and (6) legislation to stop further parceling of the land.

Israel's land tenure pattern was described by Alfred Bonne, a member of the faculty of Hebrew University. The Jewish National Fund's land activities drew considerable attention. Half a million acres are owned by the Fund and operated by farmers who hold hereditary leases. The land remains publicly owned, but the farmer is given a 49-year renewable lease.

Land tenure improvement in Greece depends on a basic change in the national economy, according to Euthymios Papageorgiou, professor of economics at the University of Salonika. A general reduction in farm population, with corresponding increase in industry, was recommended.

An encouraging picture of the development of Scandinavian agriculture was presented by Gustav Ytterborn, Deputy Minister of Agriculture in Sweden. A sharp decrease in proportion of population on the land (from 75 percent engaged in farming, fishing, and forestry in 1870 to 26 percent in 1950) has been accompanied by a steady increase in agricultural production. Improved mechanization, better farming practices, and improvements in the tenure system were credited with the gains in production.

Ytterborn stressed the need for enlarging many of the present farm holdings in Sweden.

In the opinion of Salim Akib, uneasy conditions of land tenure are the biggest problem in Malaya, where 70 percent of the land is owned by absentee landlords, whose leases with tenants are seasonal and not usually legally recognized. Rents fixed at fair levels and leases that guarantee continued security for tenants who carry out their side of the bargain are two of the best possibilities for improvement, Akib believes. For a long-term plan he favors purchase of absentee holdings at fair rates and redistribution of these lands to farmers, combined with a program of bringing new land under cultivation.

A plea for an end to "the self-sufficient and self-supplying spirit which creates customs barriers and stimulates artificial agricultural production" was voiced by Jose Ramon Astorga of the Chilean Ministry of Colonization.

Low-interest credits and rental of mechanized equipment are making Chilean agriculture yield more, he reported. Two land tenure problems are acute, however: large acreages concentrated in a few hands, and large numbers of other farms too small for efficient production.

Three United Nations officials discussed what international agencies can do to improve tenure practices. J. S. Harris, senior officer of the UN Department of Trusteeship, told of the Report on Land Reform issued in September 1951, by the United Nations Secretariat, in cooperation with FAO.

FAO's three fields of activity—fact gathering, international consultation, and technical assistance—were outlined by Thomas F. Carroll. Carroll invited the participants, through their own governments, to come to FAO for any technical aid they need in handling land tenure problems.

E. B. Fred, president of the University of Wisconsin, addressed the closing session at Madison. He cited five points on which he feels the Conference must stand: (1) The belief that something can be done to improve living standards through the world; (2) the conviction that change in farming practice has been made inevitable through technological improvement; (3) the fact that, as technology progresses and knowledge spreads, adjustments will necessarily be made in some social and economic institutions; (4) the danger that explosive pressure will be built up if there is no provision for peaceful change; and (5) the faith that peaceful adjustment of differences is possible, and that it in turn will make possible a better life for rural people.

The Conference steering committee recommended that a permanent central committee be established at the University to take international leadership in land tenure study. That recommendation was made in a preliminary report at the Conference's final session in Washington. The steering committee's final report will be published at Madison later, along with the Conference proceedings.

The permanent central committee would have both resident and corresponding members. It would (1) provide regular exchange of information between countries and publish periodically a review of land reform progress all over the world, (2) create regional subcommittees with a view toward holding regional land tenure conferences, (3) encourage the trainee program started in connection with the Conference, (4) encourage the establishment of an international land tenure lending library at Wisconsin, (5) sponsor the exchange between countries of land tenure experts, (6) recommend schemes for international assistance and research in land tenure, (7) encourage such research in every way, (8) collaborate with the United Nations, the International Conference of Agricultural Economists, and other international organizations to supplement the land tenure work already being done by them, and (9) do anything else necessary to give continuity to the work started at the Conference.

Conference delegates observed farming methods in half a dozen States. Pictured here are some of the delegates on a Wisconsin farm.

Fruit Production Program In Yugoslavia

by FREEMAN S. HOWLETT

Fruit growing, for centuries one of the special agricultural interests of Yugoslavia, is naturally a major concern of the present program of reconstruction and development. In a 6-week tour, last fall, of agricultural colleges and fruit institutes in all of the Yugoslavian Republics, except Montenegro, I had some opportunity to judge the objectives, extent, and methods of the fruit enterprise and to observe some of the practical problems confronting it.

During World War II, in which occupation and a determined resistance took a double toll of fruit resources, 38 percent of the vineyards were reportedly destroyed and 24 percent of the fruit trees. Present problems include difficulties caused by small, scattered holdings and an almost complete lack of power equipment, as well as an extreme need for chemicals for insect and disease control.

Demand for fruit is great in Yugoslavia, not only for home consumption but also as a means of increasing exports. Today's effort is not merely to replace losses, but to exceed prewar levels. Success will depend, among other things, on provisions made for controlling certain serious insect pests and diseases such as San Jose scale, woolly aphis, apple scab, and ravages of certain foliage-eating larvae. Furthermore, no information is available as to what provision the peasants, operating individually, will be able to make in order to improve production. Nevertheless in spite of all difficulties, an energetic program of improvement is in process and in time, barring future catastrophe, should quite literally "bear fruit."

As I was frequently reminded by the agricultural representatives whom I met, industrialization must take precedence. But this does not mean that fruit growing is undergoing a period of idle waiting. Production capacity may be generally judged by the following statistics showing the present fruit tree population as supplied to me in May 1951 by Yugoslav officials.

Fruit	*Number of trees*
Plum	83,000,000
Apple	13,800,000
Pear	6,000,000
Olive	3,756,000
Nut (principally walnut)	3,500,000
Sweet cherry	2,800,000
Peach	2,400,000
Sour cherry	2,000,000
Apricot	1,300,000
Quince	1,200,000
Fig	975,910
Orange	31,968
Lemon	4,842

Still more significant are the figures showing what percentage of the total are young, nonbearing trees. Such figures are useful as an index of present trends and future productivity. Statistics of this kind are, however, difficult to obtain in any country and not necessarily reliable down to the last tree. Yugoslavia is certainly no exception, but these figures are generally indicative: 35 percent of present plum tree population is reported to be nonbearing, as is the case with 42 percent of the apple trees, 34 percent of the pears, 39 percent of the sweet cherries, and 30 percent of the apricots. Statistics are not available for walnut production, which comes entirely from the many thousands of seedling trees scattered throughout the country.

State Nurseries

Nursery activity also serves as an indication of future production. All nurseries are state-owned and a number of these farms are completely devoted to large-scale production of nursery stock. Although dependent on hand labor, these nurseries are well-cared-for and the trees were making excellent growth. At one nursery in Mladenovac near Belgrade, there were 130,000 young fruit trees in the spring of 1951. Of these, 40,000 were apple, 30,000 pear, 20,000 plum, 6,000 each of apricot and peach, 7,000 sweet cherries, and 3,000 sour cherry. This included 15 varieties of apple, both on standard

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nondwarfing stocks and Malling dwarfing types II and IX and the standard nondwarfing Malling XVI. There were 18 varieties of pear, 11 of peach, 5 of plum, 4 of apricot, 7 of cherry, and 6 of grape cuttings. At another nursery in Bitolj in Macedonia, 140,000 fruit trees were produced in 1950, as well as many thousand grape cuttings.

As I understood it, this material is produced primarily for other state farms, where quantity production is a major objective. The extensive nature of such projects is indicated by the planting just made on a state farm of 35,000 acres at Srbac in northern Bosnia. On this farm, 57,000 trees were planted by hand in the spring of 1951. Twenty thousand acres will eventually be planted, chiefly on the contour, to orchards and vineyards. This is probably the most extensive new fruit planting in Yugoslavia. Incidentally, the man responsible for the digging of those 57,000 holes, all by hand, considers the possession of a hole digger one of the most desirable features of a mechanized agriculture.

Although much of the plant material from these state nurseries is definitely designed for use on such farms, presumably the collectives will have an opportunity to obtain such material as the needs of the state farms are satisfied. Whether the peasant, operating individually, on his small acreage will eventually receive such stock was not indicated, but is doubtful.

State Farm Production

Apart from these nurseries, other state-owned farms are definitely designed for the production of fruit and fruit products. Scattered throughout the country, these farms produce grapes and such deciduous fruits as apple, pear, and peach. One such farm entirely devoted to grape culture and wine production is the famous "Oplanac" near Topola in Serbia. Here, 100 acres of vineyards produce 70 wagons (185,000 gallons) of wine. Other vineyards and wineries are even larger.

Although these state farms, regardless of crop produced, constitute only a fraction of the tillable land, the soil on them is presumably better than average and the plantings certainly receive better care. It is expected that future fruit production on these specialized farms will be responsible for an increasing proportion of the total and should demonstrate what more modern methods and improved control of insect pests and plant diseases can do toward improving both the quantity and the quality.

Weeding apple seedlings on a state farm at Bitolj, Macedonia, Yugoslavia.

Cooperative or Collective Farms

In addition to the large state-owned farms, there are the cooperative or collective farms. The older type of cooperative, which handles processing and distributing of certain products, notably wine, was in operation long before the present regime and still functions, the small holder bringing his grapes to the cooperative and receiving a share of the proceeds. The new "working cooperatives," or collective farms, are of several types and vary considerably as to organization and practice. I visited a number in the less developed sections of Macedonia, where the fruit trees appeared to be reaching maturity and young plantings to replace these older ones are needed. I saw an outstanding peach orchard that is being developed on a collective farm in Ptuj in Slovenia.

Agricultural Research and Education

In addition to the two agricultural colleges established prior to World War II at Zagreb and Belgrade, three new colleges have become a part of the university system since the last war. These colleges are located at Sarajevo in Bosnia, at Skoplje in Macedonia, and at Ljubljana in Slovenia. Due to war destruction the program even of the older colleges is new and results of established work are not generally available. At Belgrade, for instance, in addition to the damage to university buildings, the building where the laboratory equipment and facilities were stored was destroyed by the Nazis only a day or so before they evacuated the city. All institutions are hampered by lack of laboratory equipment and library facilities. On the other hand, the personnel is capable and interested.

Each of these colleges has established on its farm, which is in close proximity, plantings of the various tree and small fruits that are important to the fruit economy. All research groups are generally interested in the biological control of insect pests and plant diseases. Possibly this might explain in part the widespread emphasis on selection of varieties, fruit breeding, and choice of rootstock. Whether this extensive interest in developing disease-resistant varieties was a natural outgrowth of the lack of disease control, or whether Russian emphasis on the production of vegetative hybrids had influenced the thinking, was not evident. The inevitable question concerning American plant scientists' opinion of Lysenko was as inevitably followed by questions concerning Luther Burbank.

Research Institutes

In addition to the research conducted by the agricultural colleges, there is the research carried on by institutes that are responsible to the Ministry of Agriculture and that were established for investigating special problems, such as fruit and grape culture and oenology. The institutes are generally located in the particular area most concerned with the problem involved. I visited one or more of such institutions in each of the five Republics.

At Cacak, for example, the institute has 125 acres and a staff of seven—four fruit-growing specialists and one each in entomology, beekeeping, and processing. This institute operates the only laboratory that I saw for the study of canning and dehydration and with very limited and out-of-date equipment. In addition, the work with apple varieties (including apple breeding, Delicious x Jonathan), the peach pruning, and the plum studies (including various types of *Prunus cerasifera*) represent the major aspects of their research.

At the fruit institute in Gorazde, Bosnia, 75 out of the 375 acres are in orchards and vineyards. A rather extensive experiment involving 20 apple varieties in five Malling types (I, II, V, IX, and XIII) has been established. Wild apple seedlings are reported to be more resistant to low temperature than seedlings of cultivated varieties, a fact that resulted in the initiation of work to determine the best means of rooting these wild types. One of the very few fertilizer experiments in Yugoslavia deals here with plums.

At the Institute of Agriculture at Mostar, subtropical aspects are under investigation. Work is being carried on with the olive, almond, and peach. In addition, 98 wine and 46 dessert grape varieties are on trial.

At the Institute for Adriatic Culture, with its main station on the Dalmatian coast at Split and its substation at Dubrovnik, problems connected with subtropical horticulture naturally receive major attention. At Split, olives, stone fruits, citrus fruits, and figs are most important in the program. The problem with the olive is to maintain and increase the yield and quality of the product. Present production is reported to be about 1 million gallons of oil, only a fraction of production many years ago. The director of this institute stated that Yugoslavia alone could use four times this quantity. Olive studies include ways to establish the olive on

Orchards at the Institute for Adriatic Culture, Split, Yugoslavia.

poor land, in connection with a sheep economy. At Dubrovnik, work is being carried on with loquats, various herbs, aromatic plants, and pyrethrum, which is grown for export. The establishment of an experimental planting of oranges is in prospect.

The fruit institute of Maribor in Slovenia has one of the most extensive and varied research programs to be found in Yugoslavia. An experimental planting of 118 acres is located on both state and private land. The experiments include spraying against San Jose scale, use of synthetic hormones for reducing preharvest fruit-drop, fruit breeding (17 acres), and pollination tests. Work with apples includes the use of intermediate stocks, height of heading and other training experiments, and fertilizer trials including boron. This ambitious program is well organized and directed and from all that I could judge compares favorably with our research in the same field. An outstanding wine institute is also located at Maribor.

At Saulovec near Verazdin in Croatia, a considerable amount of work with apples and pears is in progress. A rather extensive stock experiment involving eight apple varieties on eight Malling dwarfing rootstocks has been established. A considerable number of seedlings for possible use in apple propagation are being tested. Root cuttings taken in the winter from young trees have given 50 to 70 percent success in producing new plants. A spacing test of varieties on Malling IV is also established, and a trial of foreign varieties on Malling IV and XIII forms a part of the extensive program.

This essentially up-to-date program, established and carried out under laborious working conditions, is naturally of absorbing interest to a specialist in fruit production. Speaking from the viewpoint of American experience, it would seem that far too great emphasis was placed on the varietal aspect and insufficient attention given to the development of a spray program capable of controlling insect pests and plant diseases. Perhaps this aspect must of necessity wait upon the availability of both chemicals and equipment for application. It would seem, however, that a decided reduction in current and future crops is inevitable until some such program becomes effective.

Agricultural Middle Schools

Mention should also be made of the place of the agricultural "middle school" in the educational program. Designed for students of high school age, the training offered is both theoretical and practical agriculture, approximately three-quarters theory and one-quarter practice.

Graduates become agronomists or technical advisors on state farms or cooperatives, or may teach agriculture. Each school has its own more or less extensive vineyards and fruit plantings.

I reached the school at Banja Luka in Bosnia toward evening of a long day. It was raining hard but the director of the school wanted me to see the plantings. We walked over the grounds for more than an hour, and I came back dripping but with undampened enthusiasm for their excellent planting. Research in these schools is rather elementary, as would be expected, but the training so far as I could judge fills an important place in agricultural education. The middle school at Maribor seemed to me the best equipped and most outstanding.

As I have already indicated, the major emphasis of the fruit production program is on replacing fruit plantings destroyed during the war and on developing rapidly a more extensive fruit industry. The program seems to be lacking at the vital points of transportation, storage, and processing. Transportation is still primitive. Roads and railroads are generally inadequate, and, unless air freight is adopted in Yugoslavia before these thousands of trees come into bearing, there will be insufficient means of transporting fruit promptly from remote areas of Macedonia and Bosnia, where production plans are in prospect.

Adequate storages, where deciduous fruits may be stored for a brief but necessary period, are a real need as are fruit processing plants. There are only a few canneries in operation in Yugoslavia. It would seem that if the government is successful in stimulating the contemplated increase in fruit production, and provision is not made for processing it near the centers of production, considerable wastage will inevitably occur.

The two main Yugoslavian fruit crops, grapes and plums, have for centuries been processed, as wine, dried plums, and plum brandy—the omnipresent "slivovitsa." However, research in canning and dehydration seems to me to be a fundamental need in the fruit expansion program. Where production is extensive, the season of consumption must also be extended.

Too, there is the matter of quality, which is less important in a local market but which increases in importance as the market expands. It would seem to me that little can be done in this direction until more satisfactory methods of disease and insect control and processing become available. Yugoslavs realize the deficiency and their immediate interest is in biological control, but such a serious pest as San Jose scale can destroy vital acres before the time-consuming breeding experiments yield results. Around Sarajevo, I saw hundreds of plum trees defoliated by leaf-eating larvae. It would seem more practical to consider breeding the luxury of the fruit enterprise, spraying the necessity.

This completes my limited analysis of a field that, in spite of mechanical difficulties, nevertheless shows great vitality and the results of devoted and determined effort. If, as the British philosopher Arnold Toynbee points out, progress is a matter of challenge and response, here is an unmistakable challenge that should produce its own particular response.

Dusting young peach trees on a collective farm at Ptuj, Slovenia, Yugoslavia.

Postwar Progress in Asia's Agricultural Production

A detailed statistical analysis of agricultural production in Southeast and South Asia is presented herein. The study reflects the widely varying degrees of progress in the area and the difficulties imposed by a growing population.

by JOHN C. HOBBES*

Total agricultural production in Southeast and South Asia in the 1950-51 crop year was roughly equal to the prewar level, but the output of major food crops has declined. Total output per capita also has dropped—about 15 percent—because of the substantial increase in population. Per capita availability of staple foods from local production[1] fell even lower.

This area's total agricultural production has been maintained near prewar levels largely because of the huge expansion in rubber production, which is currently about 75 percent above prewar. Rubber accounts for roughly three-fourths of the gross increase in the area's farm output. Increases in some countries are due to the "over tapping" of trees in a desire to take advantage of exceptionally high prices. This intensive production is thought to be harmful to the trees and to endanger future production.

Rice accounts for about 45 percent of the area's aggregate production and for a much larger proportion in certain countries. Hence, factors bearing on the output of this one crop greatly affect total production. For example, much of the decline in the area's total food output in 1950-51 was due to decreased production of rice and millets in India (the result of floods and drought) and of rice in Burma and Indochina (the result of civil strife). In the three important sugar-exporting countries of the area—Indonesia, Formosa, and the Philippines—output is also substantially below prewar.

Of the three important rice exporting countries—Burma, Thailand, and Indochina—only Thailand has enjoyed the domestic stability needed to capitalize on the high postwar demand. As a result of high prices and favorable weather, Thailand's rice production in the past two crop years has been about 50 percent above prewar. Its output of rubber has more than doubled and minor advances have been registered by all other crops. Total production in 1950-51 was two-thirds larger than prewar but per capita production exceeded the 1935-39 level by only a third.

Burma and Indochina

In Burma and Indochina, farm output, largely rice, has been limited by insurgent activities. Burma's annual output for 1949-51 was less than three-fourths of prewar and may increase a bit in 1951-52. Indochina's total production was little more than 75 percent of prewar in both 1949-50 and 1950-51. Burma has managed to maintain rice exports at reduced, though still substantial, levels, while Indochina's exports have been quite small. In both these countries, agricultural recovery depends largely upon the return of peaceful conditions. In this respect, Burma appears to be making the greater progress.

Indonesia

Indonesia's total agricultural production in 1949-50 was somewhat less than prewar and increased only a little in 1950-51, as emphasis was given to temporarily high priced commodities. The decrease in the production of most crops was partly offset by much greater rubber output. In 1950-51, total per capita production of all crops amounted to less than nine-tenths of prewar. Per capita production of major foods, such as rice, corn, and sweetpotatoes,

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[1] This concept applies solely to the production of edible commodities, including all vegetable oils. On the other hand, consumption, which is influenced by trade and industrial usage, was not considered in the project.

was little more than three-quarters of prewar. No serious food shortages are reported because more secondary foods, notably vegetables, are being consumed. Production in 1951-52 is not expected to advance much beyond that of prewar years.

Philippines

In the Philippines, 1950-51 farm production was well above prewar, and continued increases are expected in 1951-52 despite the widespread depredations of the Communist-dominated Hukbalahaps. Progress has been greatest in the production of rice and coconuts, which, in 1950-51, was roughly 20 and 25 percent above prewar, respectively. The Manila hemp (abaca) industry is expected to approach prewar output in 1951-52. Sugar production is recovering more slowly. Total per capita production of all crops was roughly 85 percent of prewar in 1950-51. Only slight gains are expected in 1951-52.

Formosa

Except for sugar production, Formosa's output of all major crops has recently been at higher-than-prewar levels. The decline in the production of sugar, the second largest crop, depressed over-all production to four-fifths of prewar in 1949-50 and even lower in 1950-51. That, in conjunction with the natural increase in population and the influx of Chinese civilians from the mainland, lowered per capita production in 1950-51 to less than half the prewar level. Slight improvement may be made in 1951-52.

India

India's 1949-50 production was about equal to the 1935-39 level but declined significantly in 1950-51 due to unfavorable growing conditions. The 1950-51 output of rice, millets (bajra, ragi, and jowar), sesame, cotton, and cottonseed was lower than prewar, while production of sugar, gram, and peanuts was higher. Tea and jute production is currently half again as large as it was in 1935-39. Per capita production of all crops is now about 15 percent below prewar, while per capita production of major foods is still lower.

Pakistan

Pakistan's 1950-51 production was about equal to prewar. Increases in the output of grains, sugar, and pulse crops caused most of the gain. Rice production in East Bengal expanded considerably but at the expense of jute production, which declined. Floods damaged the cotton crop. Tobacco production also declined. Pakistan's per capita production of all farm commodities in 1950-51 was about 90 percent of prewar; the per capita output of major foods was at prewar levels.

Ceylon

Ceylon's agricultural production in 1950-51 was about 40 percent higher than prewar. Influenced by high prices, rubber production has more than doubled since the opening of World War II. This development has overshadowed a slight increase in rice output and substantial gains in tea production. Per capita production in 1950-51 exceeded that of prewar by a small margin and will not increase significantly during 1951-52. The marked decline in per capita production of major food crops is significant since Ceylon must import much of its food.

Malaya

Malaya's total agricultural production is currently about 60 percent above the level of 1935-39. This is due to vastly increased rubber production, which is now more than 75 percent above prewar. All other major crops except coconuts and pineapples have made substantial gains but add little to the impact made by rubber. Per capita production of all commodities is well above prewar, although per capita production of major food crops has decreased markedly, increasing the dependence on imports.

TABLE 1.—*Total and per capita production,*[1] *Southeast and South Asia, by countries, prewar average and yearly 1949–50, 1950–51, and 1951–52*

Country	Total production				Per capita production[1]			
	Prewar[2]	1949–50	1950–51[3]	1951–52[4]	Prewar[2]	1949–50	1950–51[3]	1951–52[4]
Burma	100	69	71	73	100	59	60	61
Thailand	100	160	167	164	100	127	131	126
Indochina	100	78	77	80	100	66	64	66
Indonesia	100	94	96	101	100	86	87	90
Philippines	100	99	110	116	100	78	85	88
Formosa	100	82	73	82	100	54	46	50
India	100	102	97	102	100	87	82	85
Pakistan	100	97	101	104	100	88	90	92
Ceylon	100	131	143	147	100	101	107	106
Malaya	100	158	162	161	100	125	126	121
Area total	100	101	100	105	100	87	85	88

[1] Indices of production adjusted for population increase. Based on population data supplied by U. S. Dept. of State, OIR. [2] Average annual production 1935–39. [3] Based on preliminary estimates of crop production. [4] Based on preliminary forecasts of crop production.

Table 3 compares the 1950-51 production of each major commodity in each country with prewar production, illustrating the relative effect of changes in the output of each crop on the 1950-51 production indices. The difference in crop production for the two periods has been weighted so as to express values in terms of milled rice equivalents, thus enabling comparison of similar units. In Indonesia, for example, it will be seen that the production of most crops has declined, that the increased rice output is too small to affect the index significantly, that only increased rubber production prevented the index from declining further. The relative importance of decreased output of sugar and other crops in Indonesia can also be noted. Similar analysis can be made for other countries and for the area as a whole.

Methodology

The indices shown in table 1 were computed by relating the total aggregate of prewar production of major crops to the total aggregate production of the years under consideration. The total aggregates were established for each country by multiplying the production of each commodity by its corresponding weight. Each commodity was assigned a weight, which was uniformly applied to all countries. The weight served as a common denominator, translating the value of each commodity, regardless of its food value, water content, or other peculiarities, into comparable units that could properly be added together to arrive at a total aggregate of production.

In computing the aggregates, the value of production of all commodities was combined by relat-

TABLE 2.—*Total production of major crops, and aggregates, South and Southeast Asia, prewar average and yearly 1949–50, 1950–51, and 1951–52*

Population: 1951, 624.8 million
1937, 523.3 million

Commodity	Weight[1]	Production[2]				Aggregates				Indices			
		Prewar	1949–50	1950–51[3]	1951–52[4]	Prewar	1949–50	1950–51	1951–52	Prewar	1949–50	1950–51	1951–52
		1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*				
Rice (milled)	100	53,746.4	55,376.2	53,570.0	56,639.0	53,746.4	55,376.2	53,570.0	56,639.0	100	103	100	105
Wheat	80	10,321.2	10,247.3	10,285.7	10,374.0	8,257.0	8,197.8	8,228.6	8,299.2	100	99	100	101
Barley	50	2,118.9	2,346.2	2,465.6	2,466.2	1,059.5	1,173.1	1,232.8	1,233.1	100	111	116	116
Corn	50	5,147.0	5,064.9	4,444.9	5,135.0	2,573.5	2,532.4	2,222.4	2,567.5	100	98	86	100
Millet[5]	75	11,333.9	10,590.6	9,811.0	10,577.0	8,500.4	7,943.0	7,358.2	7,932.8	100	93	87	93
Sweetpotatoes	12	3,660.7	3,878.5	3,970.0	4,019.5	439.3	465.4	476.4	482.3	100	106	108	110
Cassava	12	7,898.1	7,334.2	6,045.0	6,795.0	947.8	880.1	725.4	815.4	100	93	77	86
White potatoes	35	117.1	87.2	90.0	94.0	41.0	30.5	31.5	32.9	100	74	77	80
Sugar (centrifugal)	[6]135	4,686.9	2,733.8	3,067.4	3,372.4	6,327.3	3,690.6	4,141.0	4,552.7	100	58	65	72
Sugar (noncentrifugal)	68	3,466.9	4,329.5	4,306.0	4,307.4	2,357.5	2,944.1	2,928.1	2,929.0	100	125	124	124
Beans and peas[7]	72	3,674.0	5,566.4	4,477.2	4,644.4	2,645.3	4,007.8	3,223.6	3,344.0	100	151	122	126
Soybeans	80	290.1	283.9	278.9	294.1	232.1	227.1	223.1	235.3	100	98	96	101
Peanuts (shelled)	130	2,256.7	2,536.2	2,510.1	2,627.9	2,933.7	3,297.1	3,263.1	3,416.3	100	112	111	116
Copra	110	2,262.8	2,197.7	2,174.3	2,258.2	2,489.1	2,417.5	2,391.7	2,484.0	100	97	96	100
Sesame	160	611.4	491.0	501.6	515.8	978.2	785.6	802.6	825.3	100	80	82	84
Cottonseed	130	2,381.8	1,492.2	1,722.3	1,830.2	3,096.3	1,939.9	2,239.0	2,379.3	100	63	72	77
Palm kernels	57	49.2	39.6	44.5	43.7	28.0	22.6	25.4	24.9	100	81	91	89
Palm oil	132	241.0	170.2	180.5	164.0	313.3	221.3	234.7	213.2	100	71	75	68
Flaxseed	135	460.0	431.2	401.4	427.0	621.0	582.1	541.9	576.4	100	94	87	93
Rape and mustard	120	1,020.0	1,045.5	1,121.6	1,100.0	1,224.0	1,254.6	1,345.9	1,320.0	100	103	110	108
Castor seed	130	115.0	130.0	107.7	108.0	149.5	169.0	140.0	140.4	100	113	94	94
Pineapple	35	121.8	33.5	74.0	107.1	42.6	11.7	25.9	37.5	100	28	61	88
Abaca	200	173.1	96.9	125.2	170.3	346.2	193.8	250.4	340.6	100	56	72	98
Maguey	75	18.0	1.8	2.3	2.5	13.5	1.4	1.7	1.9	100	10	13	14
Kapok	550	25.5	9.8	8.0	12.0	140.2	53.9	44.0	66.0	100	38	31	47
Jute	150	1,530.9	1,171.2	1,409.6	1,880.0	2,296.4	1,756.8	2,114.4	2,820.0	100	76	92	123
Sisal	150	76.6	2.9	7.9	9.3	114.9	4.4	11.8	14.0	100	4	10	12
Cotton	430	1,187.8	743.9	859.1	911.2	5,107.5	3,198.8	3,694.1	3,918.2	100	63	72	77
Ramie	320	1.1	.9	.9	1.0	3.5	2.9	2.9	3.2	100	82	82	91
Spices	([8])	99.2	28.1	40.0	39.4	335.1	98.5	142.5	140.9	100	29	43	42
Rubber	840	943.5	1,607.1	1,659.5	1,682.7	7,925.4	13,499.6	13,939.8	14,134.7	100	170	176	178
Tobacco	300	747.9	464.1	473.6	494.8	2,243.7	1,392.3	1,420.8	1,484.4	100	62	63	66
Tea	980	402.6	466.7	475.4	487.0	3,945.5	4,573.7	4,658.9	4,772.6	100	116	118	121
Coffee	300	138.5	59.0	92.1	102.3	415.5	177.0	276.3	306.9	100	42	66	73
Cacao	430	5.9	4.0	3.9	4.6	25.4	17.2	16.8	19.8	100	68	66	78
Cinchona bark	2,000	11.2	5.7	5.4	5.0	224.0	114.0	108.0	100.0	100	51	48	45
Total	—	—	—	—	—	122,139.6	123,253.8	122,053.7	128,603.7	100	101	100	105

[1] Average prewar value of the commodity expressed as a percent of the value of an equal weight of milled rice. [2] Data represent total production of specified commodity for given year in 10 countries—Burma, Thailand, Indochina, Indonesia, Philippines, Formosa, India, Pakistan, Ceylon, and Malaya. [3] Preliminary. [4] Preliminary forecast. [5] Includes jowar, ragi, and bajra. [6] The price of sugar is widely influenced by government economic policy, and its market price is commonly quite different from its intrinsic value. Thi weight is greatly influenced by including in the computation the price and production data of India, whose protective policy kept sugar prices much higher than in other countries. [7] Includes gram. [8] The weights applied to individual spices are as follows: pepper 325, mace 1,200, cinnamon 420, and nutmeg 400.

TABLE 3.—*Comparison of 1950–51 production of major crops with prewar,*[1] *Southeast and South Asia, by countries*

[decreases and increases in thousand metric tons milled rice equivalents][2]

Commodity	Burma		Thailand		Indochina		Indonesia		Philippines		Formosa		India		Pakistan		Ceylon		Malaya		Total area	
	De-crease	In-crease	De-crease	In-crease	De-crease	In-crease	De-crease	In-crease	De-crease	In-crease	De-crease	In-crease	De-crease	In-crease	De-crease	In-crease	De-crease	In-crease	De-crease	In-crease	De-crease	In-crease
Rice (milled)	1,325.1	—	—	1.703.1	760.0	—	—	112.4	—	318.5	—	76.7	1,505.0	—	—	1.022.4	—	4.8	—	50.1	302.1	—
Wheat	—	6.7	—	—	—	—	—	—	—	—	—	10.4	698.6	—	—	653.2	—	—	—	—	28.4	—
Barley	—	—	—	—	—	—	—	—	—	—	—	.8	—	167.7	—	5.0	—	—	—	—	—	173.3
Corn	4.3	—	—	1.3	196.5	—	265.8	—	—	74.1	—	.5	—	35.0	—	4.6	—	—	—	—	351.1	—
Millet[3]	—	2.4	—	—	—	—	—	—	—	—	—	3.0	1,222.4	—	—	75.0	—	—	—	—	1,142.2	—
Sweetpotatoes	—	—	—	—	—	4.6	28.8	—	—	7.8	—	53.1	—	—	—	—	—	.5	—	—	—	37.1
Cassava	—	—	—	—	—	—	225.2	—	0.5	—	—	3.4	—	—	—	—	—	—	—	—	222.4	—
White potatoes	1.4	—	—	—	—	—	8.1	—	—	—	—	—	—	—	—	—	—	—	—	—	9.5	—
Sugar (centrifugal)	25.8	—	—	23.3	86.9	—	1.204.0	—	94.7	—	982.3	—	—	177.6	—	6.2	—	—	—	—	2,186.3	—
Sugar (noncentrifugal)	6.8	—	—	2.5	—	—	—	—	8.1	—	—	—	—	475.0	—	107.9	—	—	—	—	—	570.6
Beans and peas	52.1	—	—	13.3	0	0	—	—	—	7.2	—	4.2	—	[4]320.0	—	285.6	—	—	—	—	—	578.3
Soybeans	—	—	—	3.7	3.3	—	15.8	—	—	—	—	6.5	—	—	—	—	—	—	—	—	9.0	—
Peanuts (shelled)	21.8	—	0.4	—	7.1	—	4.7	—	—	6.1	—	26.6	—	330.9	—	—	—	—	—	—	—	329.4
Copra	—	—	—	—	—	—	262.9	—	—	236.5	—	—	0	0	—	—	13.7	—	57.2	—	97.4	—
Sesame	30.1	—	—	1.0	3.4	—	1.0	—	—	—	—	1.4	131.7	—	12.0	—	—	—	—	—	175.6	—
Cottonseed	40.3	—	—	14.1	2.3	—	1.1	—	—	—	.9	—	291.2	—	535.6	—	—	—	—	—	857.3	—
Palm kernels	—	—	—	—	—	—	6.3	—	—	—	—	—	—	—	—	—	—	—	—	3.7	2.6	—
Palm oil	—	—	—	—	—	—	93.6	—	—	—	—	—	—	—	—	—	—	—	—	1 .9	78.6	—
Flaxseed	—	—	—	—	—	—	—	—	—	—	—	—	72.7	—	6.5	—	—	—	—	—	79.1	—
Rape and mustard	—	—	—	—	—	—	—	—	—	—	—	—	—	56.6	—	65.3	—	—	—	—	—	121.9
Castor seed	—	—	—	—	—	—	—	—	—	—	—	—	9.5	—	—	—	—	—	—	—	9.5	—
Pineapple	—	—	—	—	—	—	—	—	—	10.8	—	—	—	—	—	—	—	—	27.6	—	16.7	—
Abaca	—	—	—	—	—	—	6.8	—	89.0	—	—	—	—	—	—	—	—	—	—	—	95.8	—
Maguey	—	—	—	—	—	—	—	—	11.8	—	—	—	—	—	—	—	—	—	—	—	11.8	—
Kapok	—	—	—	—	5.0	—	85.2	—	6.1	—	—	—	—	—	—	—	—	—	—	—	96.2	—
Jute	—	—	—	—	—	—	—	—	—	—	13.8	—	—	351.2	519.3	—	—	—	—	—	182.0	—
Sisal	—	—	—	—	—	—	106.2	—	—	—	—	3.1	—	—	—	—	—	—	—	—	103.1	—
Cotton	58.0	—	—	22.3	5.1	—	3.9	—	—	—	1.2	—	481.6	—	885.8	—	—	—	—	—	1,413.4	—
Ramie	—	—	—	—	—	—	—	—	—	—	.6	—	—	—	—	—	—	—	—	—	.6	—
Spices	—	—	—	—	9.1	—	203.0	—	—	—	—	—	—	19.5	—	—	—	—	—	—	192.6	—
Rubber	—	13.4	—	537.6	134.4	—	—	2.491.4	—	6.7	—	—	8.4	—	—	—	—	537.6	—	2,570.4	—	6,014.4
Tobacco	163.8	—	—	30.9	24.0	—	144.9	—	5.7	—	—	9.6	285.0	—	237.0	—	3.0	—	—	—	822.9	—
Tea	36.3	—	—	—	58.8	—	435.1	—	—	—	40.2	—	—	911.4	—	68.6	—	294.0	—	9.8	—	713.4
Coffee	—	—	—	—	—	.6	158.1	—	—	6.3	—	—	—	12.0	—	—	—	—	—	—	139.2	—
Cacao	—	—	—	—	—	—	3.0	—	0	0	—	—	—	—	—	—	5.6	—	—	—	8.6	—
Cinchona bark	—	—	—	—	—	—	116.0	—	—	—	—	—	—	—	—	—	—	—	—	—	116.0	—
Net change	1.743.3	—	—	2.352.7	1,290.7	—	775.7	—	—	458.1	839.7	—	1,849.2	—	—	97.6	—	814.6	—	2,564.1	211.6	—
Aggregate of prewar production	6,000		3,540		5,680		17,000		4.540		3.100		58.800		17.430		1,900		4,140		122.140	
Index 1950–51	71		167		77		96		110		73		97		101		143		162		100	

[1] 1950–51 was compared with prewar (1935–39) because it is the latest year for which production figures are fairly reliable. [2] The production of each commodity has had applied to it a weight representing the average value of the commodity in Southeast and South Asia expressed as a percent of the value of an equal weight of milled rice. Thus, units represent changes in production of the specified commodity expressed in thousand metric tons of milled rice equivalents (value basis). [3] Includes jowar, bajra, and ragi. [4] Includes gram.

ing their monetary value directly to the value of milled rice. So much of the agricultural produce of the area is of nonfood commodities that a combination in terms of calorie value would exclude several important commodities. Therefore only weights in terms of monetary value were considered.

The first step in calculating weight for a commodity was to establish its average prewar value in each country expressed as a percent of the value of an equal weight of milled rice. Local market prices for all important commodities were related to the price of rice to establish its price relationship. Effort was made to relate prices that were in comparable levels of the marketing process and of similar quality. The relationships were based on the prices of representative export grades of milled rice in the major rice-exporting countries (Burma, Thailand, and Indochina) and on representative retail prices in the other countries. Where crops are essentially export commodities, only representative export prices were used. Most of the farm produce not exported is consumed locally, never reaching a market. Because of the lack of central market data in most countries for minor staples and nonexport crops, both farm and local market prices were necessarily used. Furthermore, cash prices in many instances are influenced by domestic and colonial economic policies so as not to reflect the intrinsic value of several commodities. It was necessary therefore to apply professional judgment to the price relationships so as to establish value relationships that were realistic within the countries and within the area as a whole.

In cases where a particular crop is grown only in a single country, such as the spice crops and cinchona bark in Indonesia, or where the production of a given commodity is insignificant except for one country, the value relationships within that country alone were adopted as the weight for that commodity. For the majority of crops, the area weights were derived by computing the average of the country value relationships for each commodity, weighted according to the prewar production in each country. The weights thus derived are listed in the first column of table 2.

It was not feasible to take into account price relationships during the postwar period, because the price of rice, the base crop, has been so widely subjected to government control as not to reflect its intrinsic value. Therefore, the weights developed for the various commodities are based on average values during the period 1935-39. It is conceded that these relationships no longer hold true in numerous instances. Such departures from the stable prewar pattern are temporary in most cases and it would be unrealistic, if not impossible, to take cognizance of current price relationships in this project. Commodity prices and production data were obtained from official publications of the governments concerned and from information furnished OFAR by embassy and consular reports.

The precision of the indices is limited by inaccuracies inherent in Asiatic production statistics. Much of the data in this study are preliminary. All of them are based on the latest available estimates of production. It is acknowledged, however, that the crop reporting procedures in many countries are inadequate. The relationship of prewar production data to those of postwar probably merits special scrutiny. This is particularly true of Thailand. Other countries of Southeast Asia have new and inexperienced governments and anomalies in statistical procedures may be expected. Where it exists, civil strife also precludes accurate reporting. India's production figures are becoming more and more accurate, as crop estimates for nonreporting areas are improved. In most countries, the data for estate production are considered to be accurate while it is thought that native crops tend to be underreported. It is generally true, however, that, whatever the shortcomings of the production figures, they are fairly consistent from year to year so that the resulting indices may be regarded as useful measures of the trend of production within a given country. Revisions of these computations will become necessary as better production data become available and as a critical study of existing data progresses.

Several minor crops are not included in the indices, due primarily to the lack of price and production data. This applies particularly to minor fruits and vegetables, which in fact loom quite large in the local economies. No cognizance was taken of increases in the planted area and growth of certain perennial crops that have not as yet come into production. Abaca, oil palms, and tea shrubs are examples of such crops.

The production of livestock in the area was not included in the indices, as there is no appreciable commercial production of meat, eggs, or dairy products nor any consequential diversion of agricultural land or produce to the feeding of animals. The number of poultry and swine is relatively small. The larger animals, water buffalo and cattle, are valued primarily for draft purposes and represent farm capital rather than farm produce.

Land Consolidation in Heftrich, West Germany

The combining of tiny parcels of farming land into larger, more efficient units is one of the great needs of West Germany. This story records the land consolidation experiences of one typical village of that area.

by FRED WELTY

Adolf Steinmetz looked at the visiting newsmen with astonishment. They were in his Heftrich barnyard asking him questions, and, when he spoke, his words were recorded in 15 notebooks. But the thing that astonished Herr Steinmetz, a grizzled man with 50 years' farm work behind him, was that his fields—which are little different from others in West Germany—might become some part of world news. These well-dressed visitors came from Frankfurt to interview him as part of an ECA [1] press tour. Some of them looked to be American, some British, others German, and some he could not identify. Their questions were direct but friendly.

How big is your farm?

"I own 220 pieces of land."

Must be a big ranch. How many acres does it add up to?

"Thirty acres. They're scattered in every direction from Heftrich."

How far do you travel to reach those fields?

"Three hundred miles. It is that far to make a round trip from the village to each of my holdings. A third to half my working day is spent walking from one field to another. Three of us till the soil: myself, my daughter, and her husband. He is a refugee from the East Zone and a hard worker."

The surveyor from Wiesbaden's land consolidation office, who accompanied the newsmen, remarked that it was a miracle that the three reached the 220 pieces of land and were able to plant one thing or another on all those tiny parcels. He had surveyed the area surrounding Heftrich, which is being consolidated, after 4 years' work. He said, further, that there were 117 other farm owners in Heftrich with the same problem. Combined, they own some 10,000 plots of ground in the 1,400 acres encircling Heftrich. Consolidation he observed, is changing the entire land pattern and overcoming the results of generations of fathers subdividing their land among their sons.

How much land will you have after consolidation, Mr. Steinmetz?

"It still adds up to 30 acres, but there will be only 11 pieces of land. I'll be able to put machinery to use. I'm enlarging my barn to take care of the bigger crops I expect. I may be able to buy a tractor later, but in the meantime I can rent one from the local farm cooperative for a few weeks out of the year."

But will you still have to hike 300 miles?

"Twelve miles will bring me, round trip, to all my land."

Mr. Welty is Press Officer, Public Relations Division, High Command for Germany.

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[1] ECA—Economic Cooperation Administration—referred to in this article—is now the Mutual Security Agency.

The surveyor added that Mr. Steinmetz would be able, at last, to get home from his fields before eleven at night, as he so often saw him doing. He would have time after 50 years to acquaint himself with his town and his neighbors. He would also have leisure for reading some of the farm and European editions of the newspapers represented by the visitors.

The newsmen left the barnyard and walked through the cobblestone streets of the farming village.

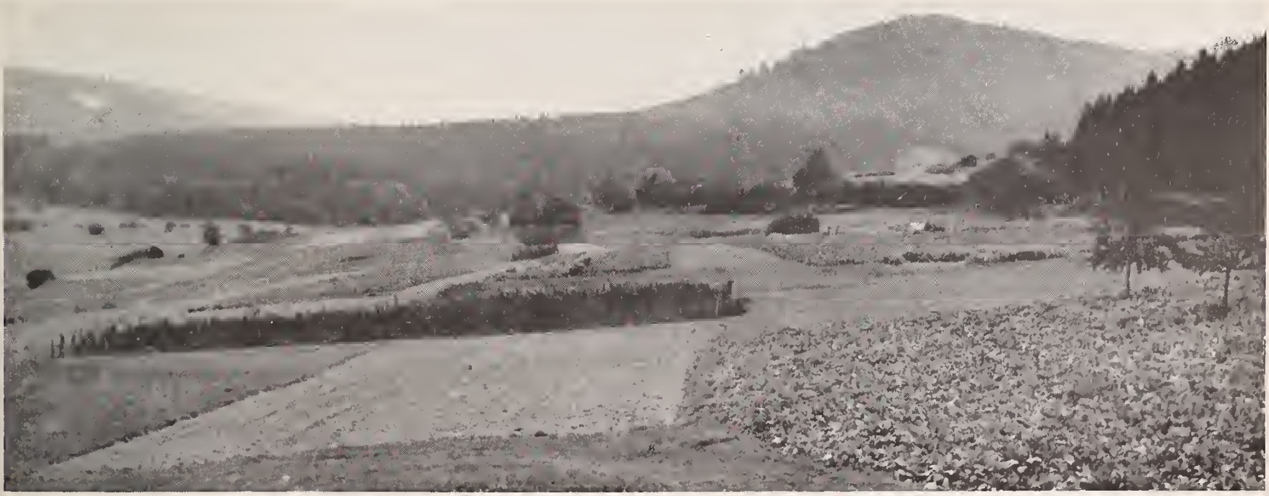
They saw the walls of Heftrich coming down. This village had been encircled by walls since the twelfth century. The world bypassed it for 800 years; recently wandering refugees settled there. These refugees, people who were turned out of Iron Curtain areas often with only the clothes on their backs, plus some who gladly volunteered the journey, make up one-fourth of the town's 1,000 population. They appear to be integrated into the farm community. Most households have a refugee or two under their roofs. They cannot be readily distinguished from other villagers, some of whose ancestors settled in Heftrich 800 years ago. The yardstick at Heftrich is not how far back a person's ancestors can be traced but rather how well he can work on the farms, and the refugees are measuring up to this standard.

The village had reached a point where it had to expand. This expansion is taking place and the refugees, together with the native inhabitants, are being favorably affected by the disappearing walls and land consolidation. Space gained from consolidation is being utilized to build a row of modern houses, the village's first swimming pool, a community house with public showers, and a soccer field. The farmers soon will have time for these facilities, and, although they will still be early risers, the new field arrangement will let the farmers sleep a couple hours later in the morning. The new homes will be occupied by refugee families, and as they marry into the native group (as did a refugee to Mr. Steinmetz' daughter) the integration will be more complete.

To gain a better picture of the scattered farming system, the correspondents walked to a knoll at the edge of town. Spreading before them was a maze of tiny holdings. The rolling hills resembled a patchwork quilt of strange shapes and colors. There were circles, triangles, and every other geometric design. Some strips were no larger than a kitchen. The largest looked smaller than a soccer field. It was impossible to count them all.

The ECA briefing officer said that it was the pattern for a considerable part of West Germany's arable land. In those areas the scattered farming system is the biggest bottleneck to bringing efficiency to farming and to increasing national food output, he declared.

There is hope, however, that gradually things will change in this respect in rural Germany. The need for land consolidation is more clearly seen than ever before, and about 800 consolidation projects are now under way in West Germany. The ECA Special Mission has given considerable encouragement, as well as financial assistance, to a good share of these projects.



Garden-sized plots of farming land are characteristic of many areas of West Germany. This scene at Heftrich is representative. Consolidation into larger, more efficient farming units is beginning.

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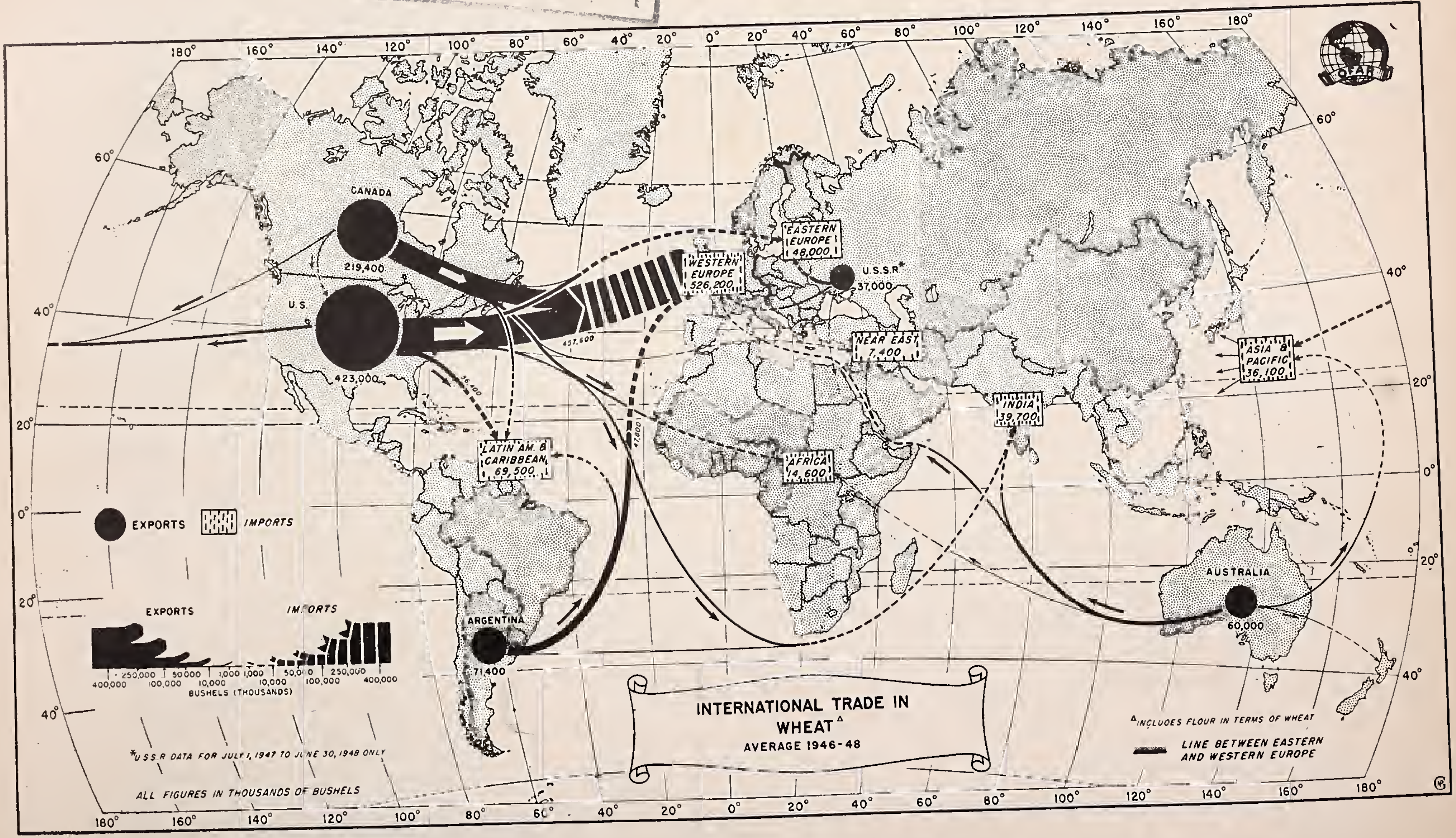

INTERNATIONAL TRADE IN WHEAT[Δ]
AVERAGE 1946-48

[Δ] INCLUDES FLOUR IN TERMS OF WHEAT

*U.S.S.R. DATA FOR JULY 1, 1947 TO JUNE 30, 1948 ONLY

ALL FIGURES IN THOUSANDS OF BUSHELS